



Global Geodetic Observing System of the International Association of Geodesy

March 26, 2012

Stephen Merkowitz
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Dear Stephen:

Thank you for the NASA response to the GGOS Call for Participation: "The Global Geodetic Core Network: Foundation for Monitoring the Earth System." The NASA and NASA partner stations have been a major component to the worldwide space geodesy network; the long operational history of these stations has been a primary source of strength and continuity for the reference frame, precision orbit determination, and all of the resulting science and applications products. Our criteria for site designation are attached.

We are pleased to inform you that:

1. Greenbelt (GGAO) and Hartebeesthoek sites with SLR, VLBI, GNSS, and DORIS have been designated as GGOS Legacy Core Sites;
2. Haystack, Kokee Park, and Fortaleza sites with VLBI and GNSS have been designated as Legacy VLBI sites;
3. Monument Peak, Mount Haleakala, McDonald, Papeete (Tahiti), Yarragadee (Australia), and Arequipa (Peru) with SLR, GNSS, and some with DORIS have been designated as GGOS Legacy SLR Sites;

Many of these sites have operated since the 1970's and been upgraded as technologies with improved capability have become available. Newer stations have helped to fill out the network by closing large geographic voids and bringing the SLR technology to new groups overseas.

Legacy Core Sites will play a very important role in the network for many years to come, but the implementation of newer technologies will be essential as GGOS strives toward mm site performance. As the performance of space geodesy techniques continue to improve, as geographic coverage expands, and as sites also incorporate ground based measurement techniques, data products and the value of our scientific output will dramatically improve.

We are very impressed with the next generation systems that are being implemented at GSFC.

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With the implementation of these new technologies we foresee site capability heading toward the 1 mm requirement of a GGOS New Technology CORE site. We also expect that the new VLBI 2010 and the NGSLR will be an incentive for other groups and a guide if not actual prototypes for system deployment elsewhere.

The close proximity of gravity field, seismic, tilt meter and other measurements on site will help greatly in understanding the local dynamics and relating them to the space geodetic instrument.

An essential element in the establishment of new technology sites is the accurate measurement of the inter-systems vectors so that the multi-technique measurements can be properly related to the mm level to support the evolution of the Terrestrial Reference Frame requirements of GGOS. The established ground survey capability and environmental monitoring at GSFC, coupled with the new activity initiated under the NASA Space Geodesy Program will help the station reach these levels of accuracy for GGOS and will again provide technology and insight for other groups.

The goals set by GGOS are challenging and very exciting, and they will address major societal issues. Ground networks built and operated through international cooperation will be an essential part of the GGOS measurement complex. The participation of the NASA team has been important to the IAG Services and to GGOS activities. We look forward to your continued participation on our road to meeting these challenges.

Sincerely,

A handwritten signature in black ink, appearing to read "Mike", with a stylized, cursive script.

Dr. Michael Pearlman
Director
GGOS Bureau for Networks and Communications

Enclosure

**GGOS Call for Participation:
The Global Geodetic Core Network: Foundation for Monitoring the Earth System.**

Site Categorization

The long term goal of the Core Network is to implement a global network of ground-based space geodetic sites that provide 1 mm and 0.1mm/year quality measurements to satisfy the GGOS Scientific Objectives (GGOS 2020). The network will evolve over time with new technologies replacing legacy technologies and new sites being established. The quality of GGOS data products will improve as the network progresses. All fully operational sites will continue to play a crucial role as this evolution proceeds.

We are accepting GGOS Network sites in three categories:

1. Core Sites include co-located SLR, VLBI, GNSS and DORIS (where available);
2. Technique Sites with at least two co-located techniques (SLR, VLBI, GNSS, DORIS); and
3. Candidate Sites that could become Core or Technique Sites when they become operational.

Core and Co-location Sites are rated as:

1. New Technology Sites: Systems on site are built with modern sustainable technologies; intersystem vectors are well monitored; site reservations are well-monumented; and meteorological data are recorded with modern meteorological systems;

Examples of modern technology are VLBI 2010 compatible mounts and receivers; high repetition rate (min, 100 Hz) SLR systems, multi-constellation GNSS receivers, modern DORIS ground systems.

2. Legacy Sites: Systems are operational, well calibrated with episodic intersystem vector determinations;

Candidate Sites are categorized as:

1. Developing Sites: Sites under construction that are scheduled for operation in the next 12 – 24 months;
2. Planned Sites: Sites in planning;
3. Offered Sites: Sites available for partnerships

GGOS also encourages sites to implement additional measurement systems including: Absolute gravimeters, Superconducting gravimeters, Seismometers, Tide Gauges, etc. that will add significantly to the understanding of the local and regional dynamics.